

IN THE CLAIMS

1-11. (Canceled)

12. (Previously presented) A modular switch comprising:  
a plurality of backplane sub-buses;  
a plurality of cards which are each allocated one or more of the backplane sub-buses;

and

a controller which dynamically allocates the backplane sub-buses to the plurality of cards, based on bandwidth needs of the cards;

wherein the controller calculates, for each of the cards, a bus demand value which represents an entitlement and need of the card to receive a sub-bus, and the controller allocates free sub-buses which are not allocated to the cards with the highest bus demand values; and

further wherein the controller confiscates sub-buses from cards whose bus demand value without the confiscated sub-buses is lower than the bus demand value of a different card after the confiscated sub-buses are transferred to it.

13-22. (Canceled)

23. (Currently amended) A method of allocating backplane sub-buses to cards of a switch, comprising:

determining bandwidth needs of each of the cards;  
assigning each of the cards a bus demand value which is a function of the bandwidth needs of the card and the current bandwidth allocated to the card; and  
allocating the backplane sub-buses to the cards based on the bus demand values of the cards;

wherein each of the backplane sub-buses comprises a different physical portion of a single backplane bus.

24. (Previously presented) The method according to claim 23, wherein determining the bandwidth needs of the cards comprises receiving messages from the cards.

25. (Previously presented) The method according to claim 23, wherein determining the bandwidth needs of a card comprises determining a measure of utilization of the sub-buses currently allocated to the card.

26. (Previously presented) The method according to claim 23, wherein determining the bandwidth needs of a card comprises listening to the sub-buses currently allocated to the card.

27. (Previously presented) The method according to claim 23, wherein assigning each of the cards a bus demand value comprises assigning a bus demand value which is a function of a priority of the card.

28. (Previously presented) The method according to claim 23, wherein assigning each of the cards a bus demand value comprises assigning a bus demand value which is a function of a minimal number of sub-buses which must be allocated to the card.

29. (Previously presented) The method according to claim 23, wherein allocating the sub-buses to the cards comprises allocating sub-buses not currently allocated to a specific card as additional sub-buses to the cards with the highest bus demand values.

30. (Previously presented) A method of allocating sub-buses to cards of a switch, the method comprising the steps of:

determining bandwidth needs of each of the cards;

assigning each of the cards a bus demand value which is a function of the bandwidth needs of the card and the current bandwidth allocated to the card; and

allocating the sub-buses to the cards based on the bus demand values of the cards;

wherein allocating the sub-buses to the cards comprises confiscating sub-buses from cards which have lower bus demand values without the confiscated sub-buses than the bus demand values of other cards with the confiscated sub-buses.

31-38. (Canceled)

39. (New) A modular switch, comprising:

a plurality of backplane sub-buses, each of the backplane sub-buses comprising a different physical portion of a single backplane bus;

a plurality of cards which are each allocated one or more of the backplane sub-buses; and

a controller which dynamically allocates the backplane sub-buses to the plurality of cards, based on bandwidth needs of the cards.

40. (New) The switch according to claim 39, wherein a bandwidth capacity of substantially all the backplane sub-buses is less than the sum of a maximal transmission bandwidth capacity of the cards.

41. (New) The switch according to claim 39, wherein the controller is implemented by one of the cards.

42. (New) The switch according to claim 41 wherein the controller is implemented by one of the cards which is selected dynamically.

43. (New) The switch according to claim 39, wherein the cards transmit messages which indicate their bandwidth needs to the controller.

44. (New) The switch according to claim 39, wherein each of the cards has a priority value which indicates its entitlement to bandwidth and the controller allocates the backplane sub-buses based on the priority values of the cards.

45. (New) The switch according to claim 39, wherein substantially all the backplane sub-buses have the same bandwidth capacity.

46. (New) The switch according to claim 39, wherein the plurality of backplane sub-buses comprise at least two sub-buses with different bandwidths.

47. (New) The switch according to claim 39, wherein the controller confiscates one or more sub-buses from one or more of the cards when the one or more sub-buses are more needed by one or more other cards.

48. (New) The switch according to claim 47, wherein the controller does not allocate a confiscated sub-bus to a card before it receives confirmation from the card from which the sub-bus was confiscated that the sub-bus was freed from its allocation.

49. (New) The switch according to claim 39, wherein the controller calculates, for each of the cards, a bus demand value which represents an entitlement and need of the card to receive a sub-bus, and the controller allocates free sub-buses which are not allocated to the cards with the highest bus demand values.

50. (New) A modular switch, comprising:

a plurality of backplane sub-buses, each of the backplane sub-buses comprising a different physical portion of a single backplane bus; and

a plurality of cards which are configurable to listen to a variable number of the backplane sub-buses.

51. (New) The switch according to claim 50, wherein at least one of the plurality of cards listens to fewer than all the backplane sub-buses.

52. (New) The switch according to claim 50, comprising a controller which dynamically changes the sub-buses to which each card listens.

53. (New) The switch according to claim 50, wherein each of the cards is configured to listen to a respective group of peer cards.

54. (New) The switch according to claim 53, wherein the sub-buses to which each of the plurality of cards listens are the sub-buses to which the respective group of peer cards transmit.

55. (New) The switch according to claim 53, wherein each card listens to the cards which listen to it.

56. (New) The switch according to claim 53, wherein at least one card listens to fewer than all the cards that listen to it.

57. (New) The switch according to claim 53, wherein the peer group of one or more cards changes as a function of time.

58. (New) The switch according to claim 57, wherein the peer groups are reduced in size during high security times.

59. (New) The switch according to claim 50, comprising for at least one of the cards a filter which passes to the card only data from the sub-buses to which the card listens.

60. (New) A modular switch, comprising:

a plurality of communication cards;

a plurality of backplane sub-buses each allocatable to one or more of the cards, each of the backplane sub-buses comprising a different physical portion of a single backplane bus; and  
at least one controller which is configurable to divide the cards into different numbers of groups, such that the cards of the different groups do not transmit data to each other, wherein the at least one controller is further configurable to allocate the sub-buses to the cards based on bus demand values of the cards.

61. (New) The switch according to claim 60, wherein the at least one controller is configurable to divide the cards into any number of groups between one and the number of cards.

62. (New) The switch according to claim 60, wherein the at least one controller divides the cards into a number of groups configured by a user.

63. (New) The switch according to claim 60, wherein the at least one controller divides the cards into a number of groups equal to a number of types of cards included in the plurality of cards.

64. (New) The switch according to claim 60, wherein the cards of the different groups do not communicate with each other.

65. (New) The switch according to claim 60, wherein the cards of the different groups do not communicate over any of the plurality of backplane sub-bases.

66. (New) The switch according to claim 60, comprising a box having a plurality of slots in which the cards are located and wherein the cards of at least one group are not located in adjacent slots.

67. (New) The switch according to claim 60, wherein only one card writes to a sub-bus at any single time.